

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An apparatus for analysing the condition of a machine having a rotating shaft, comprising:

at least one input for receiving measurement data from a sensor for surveying a measuring point of the machine,[[;]] said measurement data being dependent on rotation of said shaft;

data processing means for processing condition data dependent on said measurement data,[[;]] said data processing means comprising means for performing a plurality of condition monitoring functions (F1, F2,Fn);[[,]]

wherein said data processing means includes a Field Programmable Gate Array circuit coupled to said at least one input; and

wherein said plurality of condition monitoring functions (F1, F2,Fn) includes a function for misalignment detection.

2. (currently amended) The apparatus according to claim 1, wherein[[:]] said data processing means comprises at least two data processing devices co-operating so as to control operation of said condition analysis apparatus,[[;]] a first one of said

data processing devices being said Field Programmable Gate Array circuit.

3. (currently amended) The apparatus according to claim 1, wherein[[[:]]] a second one of said data processing devices (50A) operates to control the operation of the Field Programmable Gate Array circuit.

4. (previously presented) The apparatus according to claim 1, further comprising:

a plurality of memory segments for storing program code; and

program code means, stored on at least one of said memory segments, which when run on said Field Programmable Gate Array circuit (50B) causes the condition analysis apparatus to execute a condition monitoring function.

5. (currently amended) The apparatus according to ~~claim 4 when dependent on~~ claim 3, further comprising:

a plurality of memory segments for storing program code;

program code means, stored on at least one of said memory segments, which when run on said Field Programmable Gate Array circuit (50B) causes the condition analysis apparatus to execute a condition monitoring function; and

program code means, stored on at least one of said memory segments, which when run on said second data processing device (50A) causes the second data processing device to control the operation of the Field Programmable Gate Array.

6. (currently amended) The apparatus according to claim 1, wherein[[:]] said Field Programmable Gate Array circuit (50B) is programmable to execute said plurality of condition monitoring functions.

7. (currently amended) The apparatus according to claim 1, wherein[[:]] at least some of said plurality of condition monitoring functions (F1, F2, Fn) are at least partly embodied by computer program code.

8. (previously presented) The apparatus according to claim 1, wherein at least one of said condition monitoring functions (F1, F2,Fn) generates said condition data in response to measurement data indicative of vibration.

9. (currently amended) The apparatus according to claim 1, wherein said at least one input includes an input adapted to receive shock pulse measurement data, [[:]] said adapted input comprising means for treatment of said shock pulse measurement

data and delivery of said treated data to said data processing means.

10. (previously presented) The apparatus according to claim 1, wherein at least one of said condition monitoring functions (F1, F2,Fn), when running, generates said condition data in response to measurement data indicative of temperature.

11. (currently amended) The apparatus according to claim 10, wherein said at least one input includes an input adapted to receive measurement data indicative of temperature,[[;]] said adapted input comprising means for treatment of said temperature measurement data and delivery of said treated data to said data processing means.

12. (previously presented) The apparatus according to claim 1, wherein said at least one input includes an input adapted to receive an analogue measurement signal indicative of temperature,[[;]] said apparatus further comprising an A/D-converter (44B) which is coupled to receive said analogue temperature measurement signal; [[and]]

wherein said Field Programmable Gate Array circuit is coupled to receive digital temperature data from said A/D-converter.

13. (previously presented) The apparatus according to claim 1, wherein said at least one input includes at least one analogue-to-digital converter coupled so as to enable reception of an analogue signal and delivery of a corresponding digital signal to said data processing means.

14. (previously presented) The apparatus according to claim 1, wherein said at least one input includes an input (42D) adapted to receive binary tachometering measurement signals.

15. (previously presented) The apparatus according to claim 1, wherein said at least one input for receiving measurement data comprises a plurality of inputs coupled to said Field Programmable Gate Array circuit.

16. (original) The apparatus according to claim 15, wherein said plurality of inputs comprises two or three or more types of inputs selected from the group consisting of shock pulse measurement signal input (42A), temperature signal input (42B), vibration measurement signal input (42C), tachometering measurement signal input (42D).

17. (currently amended) The apparatus according to claim 1, wherein said plurality of condition monitoring functions (F1, F2,Fn) includes at least two ~~or three or more~~ functions

selected from the group consisting of: vibration analysis, temperature analysis, shock pulse measuring, spectrum analysis of shock pulse measurement data, Fast Fourier Transformation of vibration measurement data, graphical presentation of condition data on a user interface, storage of condition data in a writeable information carrier on said machine, storage of condition data in a writeable information carrier in said apparatus, tachometering, imbalance detection, misalignment detection.

18. (previously presented) The apparatus according to claim 1, wherein said plurality of condition monitoring functions (F1, F2,Fn) includes a function for imbalance detection.

19. (original) The apparatus according to claim 18, wherein said plurality of condition monitoring functions (F1, F2,Fn) includes a function for balancing.

20. (cancelled)

21. (currently amended) The apparatus according to claim [[20]] 1, wherein said plurality of condition monitoring functions (F1, F2,Fn) includes a function for alignment.

22. (previously presented) The apparatus according to claim 1, wherein at least one of said plurality of condition monitoring functions (F1, F2,Fn) has an enabled state and a disabled state.

23. (previously presented) The apparatus according to claim 1, having:

an apparatus body; and

a display provided on, at or in, said apparatus body.

24. (currently amended) ~~The apparatus according to claim 23,~~ An apparatus for analysing the condition of a machine having a rotating shaft, comprising:

at least one input for receiving measurement data from a sensor for surveying a measuring point of the machine, said measurement data being dependent on rotation of said shaft;

data processing means for processing condition data dependent on said measurement data, said data processing means comprising means for performing a plurality of condition monitoring functions (F1, F2,Fn), said data processing means comprising a Field Programmable Gate Array circuit coupled to said at least one input;

an apparatus body; and

a display provided on, at or in, said apparatus body;

wherein[[:]] said display has a display area of at least 4125 mm².

25. (currently amended) ~~The apparatus according to claim 23,~~ An apparatus for analysing the condition of a machine having a rotating shaft, comprising:

at least one input for receiving measurement data from a sensor for surveying a measuring point of the machine, said measurement data being dependent on rotation of said shaft;

data processing means for processing condition data dependent on said measurement data, said data processing means comprising means for performing a plurality of condition monitoring functions (F1, F2,Fn), said data processing means comprising a Field Programmable Gate Array circuit coupled to said at least one input;

an apparatus body; and

a display provided on, at or in, said apparatus body;

wherein[[:]] said apparatus body has a body volume of less than ~~1006-250~~ 1,006,250 mm³ [[mm²]].

26. (currently amended) The apparatus according to claim [[23]] 24, wherein[[:]] said display has a display area of at least 4800 mm².

27. (currently amended) The apparatus according to claim ~~[[23]]~~ 25, wherein~~[[:]]~~ said apparatus body has a body volume of less than ~~800-000~~ 800,000 mm³ ~~[[mm²]]~~.

28. (currently amended) ~~The apparatus according to claim 23,~~ An apparatus for analysing the condition of a machine having a rotating shaft, comprising:

at least one input for receiving measurement data from a sensor for surveying a measuring point of the machine, said measurement data being dependent on rotation of said shaft;

data processing means for processing condition data dependent on said measurement data, said data processing means comprising means for performing a plurality of condition monitoring functions (F1, F2,Fn), said data processing means comprising a Field Programmable Gate Array circuit coupled to said at least one input;

an apparatus body; and
a display provided on, at or in, said apparatus body;

wherein~~[[:]]~~ said apparatus body is portable, ~~and~~ said apparatus body ~~is~~ being shaped and adapted to enable a one-hand grip~~[[:]]~~, said apparatus body including user interaction means adapted to enable user interaction by means of said one hand.

29. (currently amended) ~~The apparatus according to claim 23,~~ An apparatus for analysing the condition of a machine having a rotating shaft, comprising:

at least one input for receiving measurement data from a sensor for surveying a measuring point of the machine, said measurement data being dependent on rotation of said shaft;

data processing means for processing condition data dependent on said measurement data, said data processing means comprising means for performing a plurality of condition monitoring functions (F1, F2,Fn), said data processing means comprising a Field Programmable Gate Array circuit coupled to said at least one input;

an apparatus body; and

a display provided on, at or in, said apparatus body;

wherein[[:]] said apparatus body [[is]] houses readable and writeable memory means having a storage capacity exceeding 8 megabits.

30. (currently amended) The apparatus according to claim 29, wherein[[:]] said storage capacity exceeds 240 megabits.

31. (previously presented) The apparatus according to claim 1, further comprising:

a logger for registering use of at least one of said condition monitoring functions (F1, F2,Fn).

32. (currently amended) The apparatus according to claim 31, further comprising[[:]] a communication port (16);

wherein said apparatus is adapted to be capable of delivering data indicative of said registered use on said communication port (16).

33. (currently amended) The apparatus according to claim 1, wherein[[:]] at least one of said plurality of condition monitoring functions (F1, F2,Fn) has an enabled state and a disabled state.

34. (cancelled)

35. (currently amended) The apparatus according to claim 31, further comprising:

means for comparing said registered use with a first reference value[[],]; and

means for disabling said data processing means or at least one of said condition monitoring functions (F1, F2,Fn) in response to the outcome of said comparison.

36. (currently amended) The apparatus according to claim 31, further comprising key reception means adapted to allow further use of said data processing means in response to reception of a first key.

37. (currently amended) The apparatus according to claim 31, further comprising key reception means adapted to allow further use of a selected one of said condition monitoring functions (F1, F2,Fn) in response to reception of a key associated with said selected function.

38. (currently amended) The apparatus according to claim 36, wherein said key reception means includes a communication port (16); and

said key includes a key word comprising information indicative of an amount of usage to be allowed.

39. (currently amended) The apparatus according to claim 33, further comprising:

a user interface for allowing an operator to indicate a desire to execute a condition monitoring function (F1, F2,Fn);

means for checking whether the indicated function is disabled or enabled; and

means for causing execution of said indicated function when enabled.

40. (currently amended) The apparatus according to claim 31, wherein[[:]] said logger is adapted to register use of a first condition monitoring function at a first rate; and

said logger is adapted to register use of a second condition monitoring function at a second rate.

41. (original) The apparatus according to claim 40, wherein said second rate is such that use registered at said second rate causes a higher cost per unit of usage than use registered at said first rate.

42. (original) The apparatus according to claim 40, wherein said second rate is such that use registered at said second rate causes a lower cost per unit of usage than use registered at said first rate.

43. (currently amended) The apparatus according to claim 31, wherein[[:]] said registered use is a parameter indicative of a number of executions of at least one of said condition monitoring functions (F1, F2,Fn).

44. (currently amended) The apparatus according to claim 31, wherein[[:]] said registered use is a parameter indicative of an extent of time.

45. (new) An apparatus for analysing the condition of a machine having a rotating shaft, comprising:

a plurality of inputs for receiving measurement data from sensors for surveying measuring points of the machine, said measurement data being dependent on rotation of said shaft;

data processing means for processing condition data dependent on said measurement data, said data processing means comprising means for performing a plurality of condition monitoring functions (F1, F2, Fn), wherein

said data processing means includes a Field Programmable Gate Array circuit coupled to said plurality of inputs;

a plurality of memory segments for storing program code;

first program code means (100), stored on a first one (90) of said memory segments, which when run on said Field Programmable Gate Array circuit (50B) causes the condition analysis apparatus to execute a first condition monitoring function (F1); and

second program code means, stored on a second one (120) of said memory segments, which when run on said Field Programmable Gate Array circuit (50B) causes the condition analysis apparatus to execute a second condition monitoring function (F2); and

wherein said apparatus is adapted to allow parallel processing of said first program code means and said second program code means on said Field Programmable Gate Array circuit (50B) so as to achieve simultaneous execution of at least two condition monitoring functions.

46. (new) The apparatus according to claim 24, further comprising:

a logger for registering use of at least one of said condition monitoring functions (F1, F2,Fn).

47. (new) The apparatus according to claim 25, further comprising:

a logger for registering use of at least one of said condition monitoring functions (F1, F2,Fn).

48. (new) The apparatus according to claim 28, further comprising:

a logger for registering use of at least one of said condition monitoring functions (F1, F2,Fn).

49. (new) The apparatus according to claim 29, further comprising:

a logger for registering use of at least one of said condition monitoring functions (F1, F2,Fn).

50. (new) The apparatus according to claim 24, wherein at least one of said plurality of condition monitoring functions (F1, F2,Fn) has an enabled state and a disabled state.

51. (new) The apparatus according to claim 25, wherein at least one of said plurality of condition monitoring functions (F1, F2,Fn) has an enabled state and a disabled state.

52. (new) The apparatus according to claim 28, wherein at least one of said plurality of condition monitoring functions (F1, F2,Fn) has an enabled state and a disabled state.

53. (new) The apparatus according to claim 29, wherein at least one of said plurality of condition monitoring functions (F1, F2,Fn) has an enabled state and a disabled state.

54. (new) The apparatus according to claim 45, wherein said data processing means comprises at least two data processing devices co-operating so as to control operation of said condition analysis apparatus, a first one of said data processing devices being said Field Programmable Gate Array circuit.

55. (new) The apparatus according to claim 45, wherein a second one of said data processing devices (50A) operates to

control the operation of the Field Programmable Gate Array circuit.

56. (new) The apparatus according to claim 29, further comprising:

a plurality of memory segments for storing program code; and

program code means, stored on at least one of said memory segments, which when run on said Field Programmable Gate Array circuit (50B) causes the condition analysis apparatus to execute a condition monitoring function.

57. (new) The apparatus according to claim 45, wherein said Field Programmable Gate Array circuit (50B) is programmable to execute said plurality of condition monitoring functions.